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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

MAILED
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Application Number: 10/802,562
Filing Date: March 17, 2004
Appellant(s): COLEMAN, JEFFREY L.

Jeffrey L. Coleman
Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 8/28/2007 appealing from the Office action mailed 5/17/2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

US 5,646,534	Kopera	07-1997
US 6,628,207	Hemminger et al.	09-2003

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 3, 5, 7 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Modgil (US 2002/0111756).

With respect to claims 1, 2, 7 Modgil discloses a battery safety monitor system (¶, lines 1-5) comprising: at least one battery (fig. 3, 104) comprising at least one cell string, wherein said at least one cell string is capable of outputting voltage signals; at least one zener diode (fig. 12, 1232), operatively coupled to said at least one battery cell string 104, capable of receiving and reducing voltage signals, and capable of outputting voltage signals (18 V zener); at least one safety device (fig. 3, 356, and fig. 12, 1232; ¶ 90, lines 1-6), operatively coupled to said at least one battery cell string (104, is a definition of a battery), capable of preventing damage to said at least one battery cell

string; a microcontroller (fig. 12, 300), operatively coupled to said at least one zener diode 1232, capable of receiving and outputting data; display device (fig. 15, 1530), operatively coupled to said microcontroller 1528, capable of receiving data, and capable of displaying at least one battery voltage level (capable about 5 volts); a power supply (fig. 15D, 1518), operatively coupled to said microcontroller1528 and said display device 1530, capable of supplying power to said microcontroller 1528 and said display device 1530.

With respect to claim 2, Modgil discloses safety device is selected from the group consisting of PTC, thermal fuse, fuse, isolation diode, wetness detector and optoisolator (fig. 15 D, 1518-fuse).

With respect to claim 3, Modgil discloses a display device (fig. 15, 1530) is selected from the group consisting of visual alarms (blinking light of 1530), audible alarms (1534, speaker), relay switches (fig. 16, 1614) and serial interfaces coupled to display computers (1532 and 1530).

With respect to claim 5, Modgil discloses a battery safety monitor system further comprises an A/D converter (fig. 12, A/D Converter), operatively coupled to said at least one zener diode (1232) and said microcontroller (300), capable of converting voltage signals to digital signals, and capable of outputting digital signals (¶ 31) to said microcontroller (300), and capable of receiving control signals from said microcontroller.

With respect claim 17, Modgil discloses a battery safety monitor system (¶, lines 1-5) comprising: at least one battery (fig. 3, 104) comprising at least one cell string, wherein said at least one cell string is capable of outputting voltage signals; at least one

zener diode (fig. 12, 1232), operatively coupled to said at least one battery cell string 104, capable of receiving and reducing voltage signals, and capable of outputting voltage signals (18 V zener); at least one safety device (fig. 3, 356, and fig. 12, 1232; ¶ 90, lines 1-6), operatively coupled to said at least one battery cell string (104, is a definition of a battery), capable of preventing damage to said at least one battery cell string; a microcontroller (fig. 12, 300), operatively coupled to said at least one zener diode 1232, capable of receiving and outputting data; display device (fig. 15, 1530), operatively coupled to said microcontroller 1528, capable of receiving data, and capable of displaying at least one battery voltage level (capable about 5 volts); an A/D converter (fig. 12, A/D Converter); a power supply (fig. 15D, 1518), operatively coupled to said microcontroller 1528 and said display device 1530, capable of supplying power to said microcontroller 1528 and said display device 1530, and separate power supply (page 15, par. 0143; power transmission circuit 102, which is an internal combustion engine and alternators that supply power or recharge the battery) and a battery (fig. 12, 104).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 4, 6, 8-13 and 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Modgil (US 2002/0111756) in view of Kopera (US 5,646,534).

With respect to claims 4, 8 and 18, Modgil discloses a battery safety monitoring system, a zener diode capable of receiving voltage signals, and an A/D converter, but does not disclose a plurality of batteries and an analog multiplexer, and an optoisolator.

Kopera, however, discloses a plurality of batteries (fig. 1, 14) and an analog multiplexer 30 (see also col. 3, lines 21-22), an optoisolator (fig. 1, 20).

Modgil and Kopera are analogous arts because they are from the same field of endeavor namely battery monitor for vehicles and safety system.

At the time of the invention it would have been obvious to a person having ordinary skill in the art to provide plurality of batteries, analog multiplexer and optoisolator as taught by Kopera to the vehicle safety of Modgil to ensure the safety of the battery of a vehicle.

The motivation would have been that the use of multiple batteries is used to produce more enough power for cars and vans (col. 2, lines 41-43); and a analog multiplexer used to multiplex multiple inputs into one output (see col. 3, lines 20-32); and an optoisolator to transmit a high power digital signal across the boarder to the low voltage non-isolated side (col. 4, lines 33-37).

Therefore it would have been obvious to combine Modgil with Kopera for the benefit of battery safety - security system to obtain the invention as specified in claim 4.

Regarding claim 6, Modgil discloses a battery safety monitoring system with a microcontroller, display device and a power supply, but does not disclose an optoisolator. Kopera, on the other hand, discloses an optoisolator (fig. 1, 20). It would

have been obvious for one having ordinary skill in the art would provide an optoisolator to transmit a high power digital signal across the boarder to the low voltage non-isolated side (col. 4, lines 33-37).

With respect to claims 9, 10 and 19, Modgil discloses a battery safety monitoring system with data collection and display device and a microcontroller, but does not disclose an optoisolator with a serial interface and a connector (or UART) operatively coupled to optoisolator. Kopera, however, discloses an optoisolator (fig. 1, 20) operatively coupled to said microcontroller 52; a connector (the boarder 20, see col. 4, lines 34-36); UART (Universal Asynchronous receiver/transmitter) is a well known connector used to connect or interface a microcontroller to its serial device, and is inherent to a microcontroller, specially imbedded in the microcontroller of the vehicle's safety system) (claim 10), operatively coupled to said optoisolator and, capable of receiving and outputting digital signals (48), and capable of receiving and outputting power (64). The motivation would have been that since optoisolator is used in preventing reverse current and is a combination of a photodiode and a phototransistor where an optical signal from the photodiode is transmitted across the boarder (considered as a connector between 16 and 18; see fig. 1) on the low voltage side (col. 4, lines 33-36).

Regarding claims 11 and 12, Modgil discloses a battery safety monitoring system with a microcontroller and A/D converter, but does not expressly discloses said connector comprises long wire and a wet (moisture) detector respectively.

Kopera discloses connector comprises long wires (col. 2, 1-8). These wires help transmit battery voltage and battery temperature signals from the battery monitor to the vehicle controller (col. 2, lines 3-5). Regarding a wetness detector, it is implicitly defined (electrolyte leakage of a battery is detected when a voltmeter (voltage sensor) or a thermal sensor reads a decrease in the temperature of a battery due to electrolyte leakages; voltmeter and temperature sensor are inherent of a vehicle safety monitoring system).

Regarding claims 13 and 20, Modgil discloses a data collection and display device (fig. 15, 1530, 1528), a display device, a power supply and further comprises: a second microcontroller (it is obvious that a typical mid range vehicle has as many as 50 or more microcontrollers), but does not expressly disclose a digital MUX. Kopera, however, discloses a multiplexer 30 (see also col. 3, lines 21-22, but the multiplexer is an analog mux that receives voltages signals of analog inputs; and at the time of the invention it would have been obvious to a person of ordinary skill in the art to provide a digital multiplexer that receives a digital signals and select from one of the plurality of theses signals); Modgil discloses safety device is selected from the group consisting of PTC, thermal fuse, fuse, isolation diode, wetness detector and optoisolator (fig. 15 D, 1518-fuse) (claim 21).

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Modgil (US 2002/0111756) in view of Hemminger et al (US 6,628,207).

With respect to claim 15, Modgil discloses battery safety monitoring system with at least one battery, but does not disclose the battery cells are lithium based battery.

Hemminger et al (hereinafter, Hemminger), however discloses a lithium-based battery (col. 4, lines 31-32).

Modgil and Hemminger are analogous arts because they are from the same field of endeavor namely battery monitor and warning safety system. At the time of the invention it would have been obvious to a person having ordinary skill in the art to provide lithium based battery as taught by Hemminger to the vehicle safety of Modgil to ensure the life and safety of the battery of a vehicle.

The motivation would have been that the use of lithium-based battery is used to produce more power and for longer period of time since lithium based batteries are well known in the art for their high energy output.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Modgil (US 2002/0111756) in view of Kopera (US 5,646,534) further in view of Hemminger et al (US 6,628,207).

With respect to claim 16, combined references of Modgil and Kopera disclose battery safety monitoring system with wetness detector, but do not disclose that wetness detector configured to produce reduced voltage when thionyl chloride is used.

Hemminger discloses that the battery cell used is a lithium thionyl chloride cells (col. 4, lines 31-32). The reason is that using a lithium thionyl cell helps to operate in a wide temperature range, and relatively smaller in size (col. 9, lines 6-10) so that it fits in any movable electronic apparatus or vehicles.

(10) Response to Argument

I. The 35 U.S.C. 102(b) rejection of claims 1-3, 5, 7, and 21 (and 17) based on Modgil, should be overturned because Modgil fails to disclose all the claimed limitations.

Claims 1-3, and 5

Appellant respectfully submits that the 35 U.S.C. § 102(b) rejection of claims 1-3 and 5 is improper because each and every element of those claims is not described in Modgil.

Appellant argues that Modgil does not disclose a separate power supply capable of powering the microcontroller. Modgil, in fact, discloses a power supply (page 15, par. 0143) and a battery (fig. 12, 104) (see also above rejection).

Claim 7

Appellant respectfully contends that the 35 U.S.C. § 102(b) rejection of claim 7 is improper because each and every element of that claim is not described in Modgil.

Appellant argues that "... Modgil shows a blink light or LED, but does not show this as a data collection and display device" .Modgil discloses a display device (fig. 15D, 1530) that contains a 2000 Mil candela LEDs controlled by the microcontroller 1528 displaying red light to signaling warning as per the transmitted report (par. 144). All signals are data collections and transmitted to the display device as explained above.

Claim 17

In addition, claim 17 discloses a safety device, electrically coupled in series to the battery cell string. Modgil does not disclose a safety device electrically coupled in series to a batter.

Appellant also argues that "... Modgil does not disclose a Safety device electrically coupled in series to a battery ..." Modgil, However, discloses that the safety device, such as the MOSFET switch, Is electrically coupled in series to the battery as shown in fig. 3, 356 and 202. besides, fig. 12 discloses that the main purpose of zener diode 1232 is protecting the circuit from reverse current damage to the battery as disclosed by Modgil in page 11 paragraph 0111, where the MOSFET 1224 is connected to the negative terminal 202 of the vehicle battery 104, and as the same time the zener 1232 is connected between the battery terminal and the MOSFET for protection.

Claim 21

Claim 21 is a dependant of claim 20, which in turn is a dependant of claim 18, which in turn is a dependant of claim 17. Claims 18 and 20 have not been shown to be anticipated by Modgil in the Final Action.

Appellant argues that "... each and every element ... does not Modgil discloses safety device is selected from the group consisting of PTC, thermal fuse, fuse, isolation diode, wetness detector and optoisolator

(fig. 15 D, 1518-fuse) (claim 21 dependency was a typo error, and corrected as appellant argument is proper).

II. The 35 U.S.C. 103(a) rejection of claims 4, 6, 8-13, and 18-20, based on Modgil in view of Kopera, should be overturned because the Final Action has failed to establish a prima facie case of obviousness. (a) The references together do not teach every element of the claims; (b) The modification as proposed by the Examiner would render the primary reference unsatisfactory for its intended purpose; (c) No one with ordinary skill in the art would reasonably expect the proposed combination to succeed.

Claim 4

As discussed above in regards to claim 1, Modgil fails to disclose a power supply for a battery monitor that is separate from the battery being monitored. Kopera likewise fails to disclose such a limitation. Because not all the claimed limitations are taught or suggested by the prior art, the Final Action has failed to establish a prima facie case of obviousness against claim 4 and the obviousness rejection should be overturned.

(See same reply to appellant argument in Claims 1-3, and 5 above).

Claim 6, 8-11

Claims 6 and 8-11 require an optoisolator "capable of preventing reverse currents." (Specification claim 6) The optoisolator taught in Kopera is capable of preventing direct currents from reaching the battery, but does not prevent reverse currents from entering the battery.

As disclosed in the previous office action, an optoisolator is used in preventing reverse current and is a combination of a photodiode and a phototransistor where an optical signal from the photodiode is transmitted across the boarder (considered as a connector between 16 and 18; see fig. 1)

Claim 12

Neither alone nor in combination do Kopera or Modgil teach a wetness detector operatively coupled to an A/D converter.

(See rejection to claim 12 above).

Claims 18 and 19

The cited references do not disclose an analog MUX disposed to allow voltage signals from one battery of a cell string to be received by a zener diode. Nor do the cited references teach a display device configured to receive isolated digital signals from an optoisolator. Because the cited references do not teach or suggest all the elements, Appellant requests that the rejection be overturned.

Modgil discloses a battery safety monitoring system, a zener diode capable of receiving voltage signals, and an A/D converter, display device, and Kopera discloses a plurality of batteries (fig. 1, 14) and an analog multiplexer 30 (see also col. 3, lines 21-22), an optoisolator (fig. 1, 20) (see above rejection for details).

Claims 13 and 20

Claim 13 is directed to a data collection and display device of a battery safety monitor system, not a mid- range automobile! Modgil discloses only one microprocessor in its battery monitor and security system.

(Examiner's answer to the same argument above

III. The 35 U.S.C. 103(a) rejection of claim 15, based on Modgil in view of Hemminger, should be overturned because claim 15 depends on claim 1, which is unanticipated and unobvious.

Claim 15

The summary of rejection (appellant provides no argument).

V. The 35 U.S.C. 103(a) rejection of claim 16, based on Modgil in view of Kopera and further in view of Hemminger, should be overturned because the Final Action has failed to establish a prima facie case of obviousness because the references alone or together do no teach every element of the claim 16.

Claim 16

The Final Action fails to address the limitation that the wetness detector comprises narrowly spaced conductors that are operatively coupled to a high impedance voltage and an input of said A/D converter and that the wetness detector is configured to produce a reduced voltage when thionyl chloride condenses on the two narrowly spaced conductors.

With respect to appellant argument, "... wetness detector ..." combined references of Modgil and Kopera disclose battery safety monitoring system with wetness detector, and Hemminger discloses that the battery cell used is a lithium thionyl chloride cells (col. 4, lines 31-32) as disclosed in the rejection.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Yalkew Fantu

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